

**Processor Implementation having Unified Scalar and SIMD Datapath****ABSTRACT OF THE INVENTION**

5 An improved processor implementation is described in which scalar and vector processing components are merged to reduce complexity. In particular, the implementation includes a scalar-vector register file for storing scalar and vector instructions, as well as a parallel vector unit comprising functional units that can process vector or scalar instructions as required. A further aspect of the invention provides the ability to disable unused functional units in the parallel vector unit, such as during a scalar operation, to achieve significant power savings.